IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF PUERTO RICO

CORALATIONS, ET AL, Plaintiffs, v. NATIONAL MARINE FISHERIES SERVICE, ET AL, Defendants.	)	Civil No. 12-1281 (SEC)

PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT AND SUPPORTING MEMORANDUM

Miguel Sarriera-Román, Esq.
Miguel Sarriera-Román Law Office
1104 Calle San Miguel
Quebradillas, PR. 00678

Stephen E. Roady (*pro hac vice*)
Earthjustice
1625 Massachusetts Avenue, N.W.
Washington, D.C. 20036-2212

Andrea A. Treece (*pro hac vice*)
Earthjustice
50 California Street, Suite 500
San Francisco, CA 94111

Counsel for Plaintiffs

September 14, 2012

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page(s)

CASES

STATUTES

OTHER AUTHORITIES

PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT AND SUPPORTING MEMORANDUM OF LAW

Pursuant to FED. R. CIV. P. 56(a) and Local Civil Rules 7 and 56, the Plaintiffs hereby respectfully move for summary judgment on all counts in their Second Amended Complaint in reliance on this memorandum of law, the administrative record before the Court, the Statement of Material Facts that accompanies this filing, and the attached declarations.

This action challenges the unlawful failure by the National Marine Fisheries Service and the Secretary of Commerce (hereinafter "NMFS" or "Defendants") to protect threatened corals that are uniquely important for the coral reef ecosystems of Puerto Rico and the U.S. Virgin Islands. Unless this Court requires NMFS to comply with the Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531 *et seq.*, that agency will rely upon a flawed Biological Opinion ("BiOp") to allow depletion of parrotfish – a key fish species that protects coral reef integrity by removing smothering algae. NMFS's action would illegally and adversely affect threatened corals.

Elkhorn coral (*Acropora palmata*) and staghorn coral (*Acropora cervicornis*) are protected by the ESA and are particularly threatened by this unlawful NMFS action. These two coral species historically were the key reef builders in the Caribbean; their reef-building function is unique and irreplaceable. AR 10272.[1] Healthy coral reefs are essential to the fishing and tourist economies in the Caribbean; they account for millions of dollars in revenue annually. However, the reefs are badly degraded, and elkhorn coral and staghorn coral have lost virtually all of their baseline populations in Puerto Rico and the U.S. Virgin Islands. As a result, these two coral species are threatened with extinction.

Scientific studies establish that parrotfish and other herbivorous fish protect coral reef habitat by grazing on algae that would otherwise crowd out reef-building corals. AR 10250-51.

[1] Citations to the Administrative Record are "AR __."

Unless algae is controlled by these fish, its unchecked growth can cause substantial harm to the critical habitat upon which the elkhorn and staghorn corals depend for their survival and recovery. *Id*.

The challenged BiOp was prepared by NMFS to determine whether continued fishing for herbivorous fish such as parrotfish and surgeonfish pursuant to the Caribbean Reef Fish Fishery Management Plan would violate the ESA by jeopardizing the existence of these two coral species or by adversely modifying their critical habitat. The BiOp found that elkhorn and staghorn corals are threatened, that their reef habitat is severely degraded, and that removing parrotfish will continue to make matters worse. *Id.*; *see also* AR 10282, 10314, 10336, 10345, 10357-58. It also found that the effect of NMFS's actions to manage fishing of herbivorous fish would "remain uncertain." AR 10365.

However, in the teeth of these findings, NMFS ultimately concluded that removing parrotfish would neither jeopardize these corals nor adversely modify their critical habitat. AR 10409, 10415. This arbitrary conclusion was not based on the careful analysis or scientific evidence required by the ESA. In fact, NMFS staff considered this conclusion to be "based on nothing" and "outrageous." AR 26243, 27871. Therefore, NMFS must re-write the BiOp in conformance with the requirements of the ESA and the Administrative Procedure Act ("APA").

FACTUAL BACKGROUND

The Plaintiffs are separately filing their Statement of Material Facts In Support of Their Motion for Summary Judgment. This section of the Plaintiffs' Memorandum highlights particular undisputed facts of most relevance to their summary judgment motion.

I. The Importance of Coral Reefs and the Status of Elkhorn and Staghorn Corals

Coral reefs are some of the most diverse marine ecosystems on the planet and provide numerous and significant economic and environmental benefits – including supporting hundreds of species of fish and providing a main source of food and tourism income for much of the Caribbean. Reefs are in steep decline in Puerto Rico and the U.S. Virgin Islands.

Elkhorn and staghorn corals were once the major reef builders in the U.S. Caribbean but both have declined precipitously, with most populations losing 80 to 98% of their baseline from the 1970s. AR 10275, 10308, 10311-12. Elkhorn and staghorn populations have declined so drastically that their resilience and ability to reproduce may be compromised. AR 10278, 10285.

Elkhorn and staghorn corals face numerous threats to their survival and recovery, including stress resulting from rising sea temperatures due to climate change, ocean acidification, hurricane damage, disease, and competition with algae. Stressors such as climate change, hurricanes, and disease are "severe, unpredictable, likely to increase in the foreseeable future, and, at current levels of knowledge, unmanageable." AR 10358. NMFS acknowledges that the condition of elkhorn and staghorn corals and their critical habitat is likely to continue to decline due to these threats and that removing parrotfish will increase the stress on these two coral species AR 10279, 10282, 10314, 10345, 10353-54.

Since the 1980s, many Caribbean reefs have undergone a "phase shift," meaning that macroalgae ("seaweeds") now dominate most of the space on Caribbean reefs, AR 10284, causing an overall degradation of coral reef habitat and productivity. This situation impedes recruitment of new corals and thereby interferes with the ability of elkhorn and staghorn corals to reproduce and recover. AR 10285. It also suppresses coral growth and fecundity and may cause direct coral mortality. AR 10337.

Once a reef system has undergone a phase shift to greater cover by algae and less by coral, it is relatively resistant to shifting back. AR 10338. The regional shift from high coral cover to high macroalgal cover is generally attributed to the decline of herbivorous grazing species that control macroalgal growth, stemming from "[h]uman overexploitation of herbivorous fishes" and the mass die-off of the sea urchin *Diadema antillarum*. AR 10284.

II. The Crucial Relationship between Parrotfish and Coral Health

Grazing by herbivorous fish such as parrotfish is vital to the health of the coral reef ecosystem because it controls the growth of algae. AR 10284, 10338. Scientific studies establish that numerically abundant and diverse herbivorous fish populations are necessary to remove enough algae to prevent algal overgrowth of corals and create open space for new corals to grow. Studies also show that large fish are more effective at removing algae than small fish of the same species. Because of these important differences, merely measuring the total biomass of all herbivorous fish does not accurately track effectiveness of grazing. AR 10339, 10344. Moreover, any level of fishing pressure can greatly reduce the ability of the herbivorous fish population to graze effectively on the algae. AR 12166-70, 12880, 12886, 12994, 13007-10, 10354.

The best available scientific data show that parrotfish are the only species remaining in the U.S. Caribbean that are capable of removing significant amounts of fleshy macroalgae. *See, e.g.*, AR 8744, 13042-44. At the time the BiOp was written, NMFS had determined that parrotfish were undergoing overfishing, meaning that they were subject to fishing rates high enough to threaten the viability of the fishery. AR 10253. Current data also indicate that larger individuals have been disproportionately removed by fishing, heavily skewing parrotfish populations in the U.S. Caribbean towards smaller individuals. AR 10349. Continued fishing for

parrotfish authorized by NMFS reduces grazing, reducing the ability of these fish to keep algae off corals, and potentially affecting the resilience of elkhorn and staghorn coral. AR 10250-51.

III. The Biological Opinion that Evaluated the Impact of Removing Parrotfish

On October 4, 2011, NMFS completed its Biological Opinion regarding the effects of continued fishing under Amendments 5 and 6 for the Reef Fish Fishery Management Plan for Puerto Rico and the U.S. Virgin Island on ESA-listed species. AR 10230. Amendment 5 covered parrotfish; Amendment 6 covered surgeonfish. The regulations for Amendments 5 and 6 became effective on January 30, 2012. AR 8742 (Amendment 5), 10222 (Amendment 6).

Amendment 5 establishes annual catch limits for parrotfish taken from Puerto Rico, St. Thomas/St. John, and St. Croix. AR 8742, 10235-36. These limits are based on the estimated average annual catch of parrotfish during 1999-2005 for Puerto Rico and St. Croix and during 2000-2005 for St. Thomas/St. John, with some reductions to account for uncertainty regarding actual fish abundance and effectiveness of management measures, and a 5-6% additional reduction only in St. Croix to address high fishing pressure on parrotfish. AR 10237; AR 08742, 76 Fed. Reg. 82404, 82404 (Dec. 30, 2011). When NMFS completed the BiOp, it classified parrotfish as "undergoing overfishing" and "approaching an overfished condition." AR 10253.

At the time of the BiOp, NMFS had never conducted any stock assessments for parrotfish. AR 10343, 10345. Accordingly, its scientific advisory team concluded that "existing data are insufficient to quantify current, historical, and unfished biomass levels in the U.S. Caribbean or to accurately describe how populations would respond to changes in removals." AR 10343. The BiOp itself noted that NMFS could not quantitatively evaluate the course of fish population responses or even the absolute or relative increase in biomass. AR 10365. NMFS therefore concluded that "the magnitude and timing of any grazing-induced changes in algal

cover caused by the proposed action remain uncertain." *Id.* Yet NMFS also determined that continued fishing for herbivorous fish would result in continued adverse impacts to the corals and their critical habitat, and that Amendments 5 and 6 would need to result in reduced algal growth and facilitate increased sexual and asexual reproduction by staghorn and elkhorn coral in order to avoid a "jeopardy" or "adverse modification" finding. AR 10401, 10405-06.

Notwithstanding NMFS's admitted inability to determine whether its catch limits and other management measures would be in any way sufficient to reduce algal growth and facilitate increased coral reproduction, NMFS concluded that the Fishery's continued adverse impacts were not likely to jeopardize elkhorn and staghorn coral or adversely modify their critical habitat. Moreover, notwithstanding its uncertainty regarding whether any increase in herbivorous fish that might result from those measures will have any effect on algal growth, the BiOp proposes to monitor the Fishery's incidental take of staghorn and elkhorn coral by monitoring the overall biomass of herbivorous fish, without regard to the relative abundance of any particular species or size of fish, and only in St. Croix waters. AR 10417-19, 10421.

STANDING AND JUDICIAL REVIEW

The attached declarations of Mary Ann Lucking (Ex. 1), Lourdes Feliciano (Ex. 2), Peter Galvin (Ex. 3), and Mary Adele Donnelly (Ex. 4), demonstrate that Plaintiffs have standing, because they are alleging "a concrete and particularized injury in fact, a causal connection that permits tracing the claimed injury to the defendant's actions, and a likelihood that prevailing in the action will afford some redress for the injury." *Weaver's Cove Energy, LLC v. R.I. Coastal Res. Mgmt. Council*, 589 F.3d 458, 467 (1st Cir. 2009); *accord, Antilles Cement Corp. v. Fortuño*, 670 F.3d 310, 317 (1st Cir. 2012). The October 4, 2011 BiOp is a final agency action subject to judicial review pursuant to the APA. 5 U.S.C. §§ 704, 706(2)(A). *Cf. Bennett v. Spear*,

520 U.S. 154, 177-78 (1997) (BiOp is final agency action). NMFS's ongoing authorization of the Fishery pursuant to the BiOp is also reviewable under the ESA. 16 U.S.C. § 1540(g).

SUMMARY OF ARGUMENT

The ESA requires NMFS's Office of Sustainable Fisheries, in consultation with NMFS's Office of Protected Resources ("OPR"), to ensure that "any action authorized, funded, or carried out" pursuant to its authority "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species." 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.02. In conducting these "jeopardy" and "adverse modification" analyses, NMFS OPR must evaluate the proposed action using "the best scientific and commercial data available," *id.* At the conclusion of consultation, NMFS OPR must provide a detailed written statement, known as a "biological opinion," "explaining how the proposed action will affect the species or its habitat." *Bennett*, 520 U.S. at 157-58 (citing 16 U.S.C. § 1536(b)(3)(A)). The biological opinion must include an evaluation of "the current status of the listed species or critical habitat," the "effects of the action," and "cumulative effects." 50 C.F.R. § 402.14(g)(2)-(3); *see id.* § 402.02. NMFS must analyze whether the action, taken together with cumulative effects, and added to the past and present effects of all human activities in the action area, is likely to jeopardize the continued existence of listed species, or destroy or adversely modify their critical habitat. *Id.* §§ 402.02 (defining "environmental baseline"), 402.14(g)(4); 16 U.S.C. § 1536(b)(3)-(4). NMFS's analysis must be based upon the best available science, and must rationally explain its final conclusions with respect to "jeopardy" and "adverse modification" by clearly connecting them to the facts contained in the BiOp. Because the BiOp does not comply with these fundamental legal

requirements, it must be set aside as "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," 5 U.S.C. § 706(2)(A).

The BiOp violates the law in several ways. First, the BiOp violates both NMFS's duty under the ESA to base its conclusions on the best available science and its duty under the ESA and the APA to draw a rational connection between the information it presents and its "no jeopardy" and "no adverse modification" conclusions. Far from being rationally connected to the facts and grounded on the best information, an agency scientist deemed the NMFS conclusions to be "based on nothing" and "outrageous." AR 26243, 27871.

Second, the BiOp fails to *add* the impacts of allowing excessive removal of parrotfish to all other threats that already are adversely affecting these two coral species. Instead of adding those impacts together, the BiOp merely compares the Fishery's effects with other existing threats to the corals and bases its analyses of the likelihood of jeopardy to elkhorn and staghorn coral, and the destruction or adverse modification of their critical habitat, solely on the Fishery's incremental impacts. In addition to violating the ESA, this approach defies common sense – it is akin to a doctor ignoring the combined effects of high blood pressure and diabetes in one of his patients, and focusing instead only on the potential effects of one or the other in isolation.

Third, the BiOp violates the ESA by failing to establish an incidental take limit that addresses the effects of removing parrotfish and failing to establish effective monitoring measures that would provide a meaningful trigger for determining when those impacts have exceeded NMFS's predictions. This failure renders NMFS powerless to ensure that the Fishery will not jeopardize the continued existence of elkhorn and staghorn coral. Indeed, it is akin to the doctor capriciously sending his ailing patient home with neither a blood pressure monitor, nor a kit to measure blood sugar for diabetes.

Finally, NMFS's choice to authorize continued fishing for parrotfish in reliance on the patently flawed BiOp violates its duties under the APA and ESA to ensure that its actions are lawful and are not likely to jeopardize listed species or adversely modify their critical habitat.

ARGUMENT

I. Defendants Failed to Base their Jeopardy and Habitat Modification Determinations on the Best Available Science and Did Not Establish a Rational Connection between the Facts Found and the Conclusions Made

The NMFS BiOp may only be upheld if it meets two basic requirements. First, under the ESA, the BiOp must base its conclusions upon "the best scientific ...data available." 16 U.S.C. § 1536(a)(2); *Bennett,* 520 U.S. at 176 (best available science requirement ensures "that the ESA not be implemented haphazardly, on the basis of speculation or surmise."). Second, under the APA, the BiOp must establish a rational connection between the facts it presents and the "no jeopardy" and "no adverse modification" conclusions it makes. *See Sistema Universitario Ana G. Mendez v. Riley,* 234 F.3d 772, 777 (1st Cir. 2000) (need for rational connection between facts found and choice made), *quoting Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co*., 463 U.S. 29, 43 (1983); *NLRB v. Beverly Enterprises—Mass., Inc.*, 174 F.3d 13, 23 (1st Cir.1999) (same) *see also Roosevelt Campobello Int'l Park Comm'n v. EPA*, 684 F.2d 1041, 1049 (1st Cir.1982) (decision must consider relevant factors and avoid clear errors in judgment).

The administrative record demonstrates that the NMFS BiOp fails to meet either of these two requirements. Having reviewed the best available science on the topic, a NMFS scientist involved in drafting the BiOp concluded that the proposed action presented "a slam-dunk DAM [destruction or adverse modification of critical habitat]" and stated that "in order to err on the side of the species (as required), we should call DAM/Jeopardy. . . ." AR 25386. Indeed, a review of the BiOp's findings leaves little doubt that the Fishery's impacts, when added to the

perilously degraded status of the species and their critical habitat, are likely to tip the species into jeopardy and destroy or adversely modify their critical habitat.

The BiOp makes clear that elkhorn and staghorn coral populations are currently at extremely low levels. AR 10276, 10308, 10311-12. Around St. Croix, live elkhorn and staghorn coral have declined by more than 99%. AR 10276. NMFS concluded that in many areas these corals can no longer sexually reproduce because so few individual colonies are left. AR 10278, 10285; *see also* AR 21171-72. The BiOp also makes clear that the corals' habitat is in equally dire straits. Since the 1980s, reefs in the U.S. Caribbean have become dominated by algae, leaving less and less space for corals to grow and reproduce. AR 10284-85, 10337. This "phase shift" to algal-dominated reefs, which provide substantially poorer habitat for coral and fish alike, is very difficult to reverse, and perhaps impossible to reverse given continued significant fishing pressure on key herbivores like large parrotfish. AR 10337-39, 12886, 12994, 13007.

The BiOp explains that a numerically abundant, diverse population of herbivorous fish, including many large-bodied fish, is necessary to effectively graze algae and prevent overgrowth. AR 10334, 10339. NMFS also admits that parrotfish are the only remaining herbivores on U.S. Caribbean reefs that can effectively graze fleshy macroalgae that pose the greatest threat of crowding out habitat and corals. AR 8744.

Indeed, the BiOp acknowledges that fishing for parrotfish and other herbivorous fish under Amendments 5 and 6 will continue to adversely affect staghorn and elkhorn coral and their critical habitat, effectively keeping them at extremely low levels at which recovery is highly unlikely. AR 10250-51, 10351, 10353, 10354. This is particularly the case because the condition of the corals' critical habitat is severely degraded and expected to continue to degrade due to the synergistic effects of fishing along with disease, climate change, and hurricanes. AR 10354.

In the face of this scientific evidence, NMFS's conclusions that the level of fishing it authorizes is not likely to jeopardize the already perilously scarce staghorn and elkhorn corals or destroy or adversely modify their already severely degraded habitat are untenable. These conclusions rest on several fatally flawed rationales, none of which bear any rational relationship to the facts found or best available science presented.

First, NMFS endeavors to avoid its ESA duty by asserting that algal growth due to the removal of herbivorous fish is a "relatively moderate" threat when compared to "severe" and supposedly "unmanageable" threats such as climate change, hurricanes, and disease. AR 10354. As discussed below, the ESA prohibits NMFS from comparing the threats from a proposed action rather than adding them to the species or habitat's baseline condition. Moreover, it is both illogical and unlawful for NMFS to argue that it may avoid taking all steps necessary to reduce the one threat it plainly has the power to address (fishing pressure) because other "unmanageable" threats are allegedly more severe. By law, NMFS is obligated to use its authority to advance the conservation of listed species as well as to ensure that fishery management measures are not likely to jeopardize those species. 16 U.S.C. § 1536(a)(1)-(2); *see Tn. Valley Auth. v. Hill*, 437 U.S. 153, 173 (1978) (ESA "affirmatively command[s]" that all federal agencies "*insure*" that their actions do not jeopardize listed species) (emphasis in original). In fact, NMFS itself notes that eliminating adverse impacts from fishing is exactly the sort of step it must take to ensure that staghorn and elkhorn corals can survive amid the severe and unpredictable threats posed by storms, disease, and climate change. AR 10408 ("secondary stressors should be the main focus of regulatory and recovery actions such that the species would be better able to adapt and recover from the continuing impacts of primary stressors").

Second, NMFS asserts that continued fishing under Amendments 5 and 6 will avoid jeopardy and adverse modification because it will result in some "highly uncertain and unquantifiable" increase in the overall biomass of herbivorous fish that *may* result in some highly uncertain and unquantifiable reduction in algal growth compared to 2008, when staghorn and elkhorn critical habitat was originally designated. AR 10349, 10351, 10404. With respect to its jeopardy analysis, NMFS assumes that the predicted (but uncertain) increase in herbivorous fish biomass "may" reduce impacts of supposedly "moderate" threats to elkhorn and staghorn corals. AR 10409. With respect to its critical habitat analysis, NMFS concludes that in order to avoid adverse modification to critical habitat, continued fishing must not appreciably reduce the capability of critical habitat to facilitate *increased* incidence of sexual and asexual reproduction. AR 10401. NMFS then concludes that although it does not know whether the action will have *any* effect on algal growth, and while it is unable to predict whether or not it will affect functional grazing by herbivores, continued fishing nonetheless is not likely to destroy or adversely modify critical habitat. *See* AR 10343, 10365, 10404. This rationale fails on numerous grounds.

As an initial matter, NMFS admits that by 2008 "the impacts of coral loss and increasing algae had already become severe," and that the combined effects of the existing Reef Fish Fishery and other factors had already impaired the species' chances of survival and recovery. AR 10402, 10406-07. Yet the agency, unlawfully and inexplicably, chose to use the same, severely degraded conditions that led to the species' listing and critical habitat designation as the baseline measure by which it would judge whether the Fishery could be deemed to adversely affect elkhorn and staghorn corals. Under the NMFS approach, the Fishery would be deemed not to jeopardize the corals so long as it could be deemed to allow for any increase in the rate of algal

growth above the rate that was ongoing in 2008. This approach allowed NMFS to assert that the Fishery would not jeopardize these corals even though it left them only marginally better off than in 2008, when NMFS concedes that their condition was severe, and when NMFS admits that other, more major, stressors are unmanageable and likely to worsen.

The ESA does not permit NMFS to leave a species balanced on the knife's edge of jeopardy in this manner. *See Wild Fish Conservancy v. Salazar*, 628 F.3d 513, 528 (9th Cir. 2010) ("no jeopardy" determination was arbitrary and capricious where agency determined that improvement in species' condition was necessary and asserted that proposed action would result in "small" improvements to the condition of a highly imperiled fish population, but admitted that the population would continue to decline); *Nat'l Wildlife Fed. v. NMFS*, 524 F.3d 917, 931 (9th Cir. 2008) ("*NWF v. NMFS*") (not sufficient to allow species' chances of recovery to dwindle even if the species can "cling to survival").

Furthermore, the ESA does not permit NMFS to assume that continued fishing for herbivorous fish is not likely to result in jeopardy or adverse modification without knowing or specifying the actual level of habitat improvement or minimization of fishery impacts necessary to avoid jeopardy and adverse modification. As the Ninth Circuit has explained, "It is only logical to require that the agency know roughly at what point survival and recovery will be placed at risk before it may conclude that no harm will result from 'significant' impairments to habitat that is already severely degraded." *Id.* at 936; *see also Wild Fish Conservancy*, 628 F.3d at 527 (invalidating biological opinion that did not determine "when the tipping point precluding recovery . . . is likely to be reached"); *Conservation Law Found. v. Watt*, 560 F.Supp. 561, 573 (D. Mass. 1983) (disapproving agency's "no jeopardy" assumption where agency acknowledged that action would impact species but could not identify a threshold of activities that would result

in significant impacts: "This kind of speculation and hypothesis cannot be equated with an unlikelihood of jeopardy, and is a clear signal that further scientific study and analysis is required."). Where impacts to a species are truly uncertain, the agency must nevertheless explain why that uncertainty counsels in favor of its chosen course of action. *Greater Yellowstone Coal., Inc. v. Servheen*, 665 F.3d 1015, 1028 (9th Cir. 2011).

In this case, NMFS admits it does not know the current, past, or historical biomass of herbivorous fish in the U.S. Caribbean, what (if any) effect the Fishery will have on fish biomass, and what (if any) effect any increase in herbivorous fish biomass that might result would have on elkhorn and staghorn critical habitat. AR 10345-46, 10351, 10353, 10355, 10356, 10358, 10368. NMFS explicitly admitted that "it is unclear what level of parrotfish harvest, if any, would achieve a sufficient increase in parrotfish biomass such that macroalgal growth could be effectively mediated." AR 26062. The best available science demonstrates that even modest levels of fishing pressure could significantly impede the ability of herbivorous fish populations to mediate algal growth, particularly on an algal-dominated reef. AR 12422, 10354, 12166-70. The science also demonstrates that fishing impacts act synergistically with other threats such as hurricanes, disease, poor water quality, and climate change, and thus pose a serious threat to the coral species and their habitat when fishing impacts are added to the corals' and reef habitat's already perilous condition. AR 10337-39, 20917-34, 11264, 12166-70, 12466-73.

Evidence in the administrative record directly undermines the BiOp's conflicting assumptions that herbivorous fish play only a moderate role in mediating algal growth but that modest increases in their biomass would nonetheless result in reduced algal growth. NMFS staff presented extensive scientific evidence showing that parrotfish, as the only remaining large herbivores on the reef, play a very significant role in mediating algal growth and that even

relatively light fishing pressure could seriously impair the ability of herbivorous fish to mediate algal growth. *See, e.g.,* AR 28123, 28136 (summarizing studies finding that maintaining natural densities of diverse herbivores was necessary to foster adequate grazing); 31190 (noting that any level of fishing pressure on parrotfish can lead to increased macroalgal growth). A NMFS scientist also pointed out that the BiOp's assumption that an increase in the overall biomass of herbivorous fish would have any beneficial effect on staghorn and elkhorn coral and their critical habitat was "outrageous" and "based on nothing." AR 27871, 26243; *see also* AR 26014, 31190-91. Another NMFS staffer questioned the logic of the BiOp's assumption that a reduction in continued fishing would halt or reverse increasing trends in macroalgal cover even though it also concludes "that herbivores are not THE influencing factor." AR31971; *see also* AR 10351, 10353 (acknowledging that two of the three critical habitat units for elkhorn and staghorn corals will, in fact, be adversely affected by the proposed action).

However, rather than heeding the informed advice of its own experts and the substantial body of best available science, NMFS acted contrary to that advice in arriving at its "no jeopardy" and "no adverse modification" conclusions. *See* AR 25386 (noting the agency's "reluctance and flat out refusal to see this as a [destruction or adverse modification] action ..."); 26243 (noting staff's "objection to the approach we are being forced down"); 31190-91 (noting NMFS leadership had developed "new" argument to support no jeopardy/no adverse modification decision and had "fought" OPR's analysis).

In short, the BiOp's determination that the Fishery is not likely to jeopardize the continued existence of elkhorn and staghorn corals or destroy or adversely modify their critical habitat has no rational basis in the record, and is not based upon the best available science.

Therefore, the BiOp violates the ESA, and is also arbitrary and capricious, an abuse of discretion, and not in accordance with law, in violation of the APA, 5 U.S.C. § 706(2).

II. Defendants Failed to Consider the Fishery's Cumulative Adverse Impacts in the Context of Severe Existing Threats to the Species and Their Habitat

The ESA requires that NMFS consider whether continued fishing for parrotfish and other herbivorous fish is likely to cause jeopardy or adverse modification when fishing impacts are added to the environmental baseline and analyzed in light of the current status of the species. 50 C.F.R. § 402.02, 402.14. The "environmental baseline" includes "the past and present impacts of all Federal, State or private actions and other human activities in the action area" and "the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation." *Id.* § 402.02.

The jeopardy analysis in the BiOp is fatally flawed because it fails to analyze the *total* impact of (1) the current action (removing parrotfish) "added to" (2) other threats faced by elkhorn and staghorn corals, in light of (3) the status of those corals. "Effects of the action" include both direct and indirect effects of an action "that will be *added to* the environmental baseline." 50 C.F.R. § 402.02 (emphasis added).

A proper jeopardy analysis assesses whether the additional harm from the action in question will "tip a species from a state of precarious survival into a state of likely extinction," and where baseline conditions already jeopardize a species, whether it will "deepen[] the jeopardy by causing additional harm." *NWF v. NMFS*, 524 F.3d at 930. Rather than taking this approach, NMFS merely compared the current action with other existing threats, resulting in an analysis that assessed the *comparative* rather than the *additive* effect of removing parrotfish on the staghorn and elkhorn corals and their critical habitat. AR 10404.

Specifically, the BiOp concluded that fishing only poses a "moderate" threat *compared to*

climate change, hurricanes, and disease, and asserts that the "incremental" contribution of fishing effects to the decline of the corals and their habitat do not "in and of themselves" cause jeopardy or adverse modification. AR 10403-04, 10406-08. What it does not do is consider whether the *addition* of fishing impacts to the species' already seriously degraded and worsening situation will tip them into jeopardy or adversely modify their critical habitat.

Courts have consistently rejected this approach as contrary to section 7(a)(2) of the ESA. *See, e.g., NWF v. NMFS*, 524 F.3d at 917 (holding this approach unlawful); *accord Wild Fish Conservancy*, 628 F.3d at 523. In *NWF v. NMFS*, the Ninth Circuit held that "[t]he proper baseline analysis is *not the proportional share of responsibility* the federal agency bears for the decline in the species, but what jeopardy might result from the agency's proposed actions in the *present and future human and natural contexts*." 524 F.3d at 930 (quoting *Pac. Coast Fed'n v. U.S. Bureau of Reclamation*, 426 F.3d 1082, 1093 (9th Cir. 2005)) (first emphasis added; second emphasis in original). Merely comparing one action's effects with other types of harm – as NMFS did in the BiOp – rather than addressing the direct, additive effect of that action on a species, creates a situation in which it is unclear how jeopardy could ever be found for a single action "in and of itself." As a result, this comparative approach could "gradually destroy[]" a species, "so long as each step on the path to destruction is sufficiently modest," and this approach violates the ESA because "[t]his type of slow slide into oblivion is one of the very ills the ESA seeks to prevent." *Id.* at 930. *See also Wild Fish Conservancy*, 628 F3d at 523.

NMFS's "relative contribution" analysis is especially nefarious for species like elkhorn and staghorn corals that experience diffuse and varied threats. In this respect, these corals are in a similar position to sea turtles, which also face a wide array of problems. In *Blue Water Fishermen's Ass'n v. NMFS*, 266 F.Supp.2d 330 (D. Mass. 2002), a group of fishermen plaintiffs

objected to NMFS's jeopardy finding by insisting that their fishery was "just one small contributor to the jeopardy of the leatherback and loggerhead sea turtle populations." *Id*. at 341. The court rejected that argument, referring back to the clear regulatory command to consider the additive effect of the action when totaled, in context, with all other actions and holding that "NMFS need only have found that the [fishery] threat together with other cumulative effects add up to jeopardy." *Id*. at 341-42; *see also Nat'l Wildlife Fed'n v. Coleman*, 529 F.2d 359, 374 (5th Cir. 1976) (agency must ensure that the action's cumulative impacts do not "further threaten" the species). Just as the court found in *NWF v. NMFS*, this biological opinion "amount[s] to little more than an analytical slight [sic] of hand, manipulating the variables to achieve a 'no jeopardy' finding," 542 F.3d at 933.

NMFS's unlawful comparative analysis also ignores the fact that staghorn and elkhorn coral populations are critically depleted, still declining, and facing compounding threats from climate change, hurricanes, and disease that NMFS itself states are severe, "unmanageable," and likely to increase in the future. AR 10279, 10358, 10408. Indeed, the BiOp itself notes that these two coral species are so depleted in some areas that they can no longer successfully reproduce, indicating that any further losses could tip the species inexorably toward extinction. AR 10278, 10285. Yet NMFS downplays the significance of fishing, the one threat it can and must manage – and one that could tip the species over the brink – in order to reach its "no jeopardy" and "no adverse modification" conclusions.

This approach is unlawful. As the Ninth Circuit recently emphasized, it is essential to consider the cumulative impact of the species' decline, added over time, because "[i]f the downward trend grew steeper as the population got smaller, as could be the case if the same proportion of individuals was prevented from reproducing each year, the overall exponential

decline in the population might be all the more likely to appear 'appreciable' when considered from a longer-term perspective." *Wild Fish Conservancy*, 628 F.3d at 523, n.7. Put another way, the population trend has a direct impact on how fast a "slow slide into oblivion" is likely to be. NMFS's comparative analysis illegally ignores the true, cumulative effects of the Fishery which, when added to other threats and the declining status of the species, clearly and appreciably reduce the chances that elkhorn and staghorn coral will survive and recover. *NWF v. NMFS*, 524 F.3d at 930; *see also Nat'l Wildlife Fed'n v. NMFS*, 481 F.3d 1224, 1237-38 (9th Cir. 2007).

III. Defendants Failed to Establish a Meaningful Trigger for Re-initiating Consultation on the Fishery's Effects Should Those Effects Exceed the Level Predicted by NMFS

ESA § 7(b)(4) requires NMFS to issue an "incidental take statement" whenever it finds that a proposed federal agency action is not likely to jeopardize a protected species but will nonetheless result in "incidental take" (harm or destruction) of members of the species. 16 U.S.C. § 1536(b)(4). The incidental take statement must specify the amount or extent of the incidental take, identify "reasonable and prudent measures" necessary to minimize the impact of the take, and set forth the terms and conditions with which the action agency must comply in order to implement those measures. *Id.*; 50 C.F.R. § 402.14(i)(1)(i)-(iv). Incidental takings are lawful (and thus granted "safe harbor" from liability) only where the agency has obtained an incidental take permit pursuant to ESA § 10, or where, after consultation, the agency complies with all reasonable and prudent measures pursuant to ESA § 7(b)(4). *See Or. Natural Res. Council v. Allen*, 476 F.3d 1031, 1034 (9th Cir. 2007) ("*ONRC*"); *Strahan v. Linnon*, 967 F.Supp. 581, 624 (D. Mass. 1997).

The central purpose of the incidental take statement is to "set forth a 'trigger' that, when reached, results in an unacceptable level of incidental take, invalidating the safe harbor provision, and requiring the parties to re-initiate consultation." *Az. Cattle Growers' Ass'n v. U.S.*

Fish & Wildlife Serv., 273 F.3d 1229, 1249 (9th Cir. 2001); *accord Miccosukee Tribe of Indians of Florida v. U.S. Fish & Wildlife Serv.*, 566 F.3d 1257, 1271-72 (11th Cir. 2009). While the ESA requires NMFS to set a numerical limit whenever possible, NMFS may use a surrogate for take if it provides a reasoned explanation as to why a numerical limit is not possible. *Id.* at 1250; *ONRC*, 476 F.3d at 1037. In such cases, the incidental take statement "must articulate a rational connection between the surrogate and the taking of the species." *Wild Fish Conservancy*, 628 F.3d at 531: *see also Az. Cattle Growers' Ass'n*, 273 F.3d at 1250 (even where effects on the species itself are difficult to detect "some detectable measure of effect should be provided").

In addition to specifying a meaningful trigger for reconsultation, the incidental take statement must set forth effective measures to monitor the effects of the action such that the agency is notified when the trigger is met. *Wild Fish Conservancy*, 628 F.3d at 531-32, citing 50 C.F.R. § 402.14(i)(3). Without such monitoring terms, the agency would be unable to ascertain whether the takes have exceeded those allowed.

The BiOp's incidental take statement falls short of the ESA's incidental take requirements in numerous ways. As a threshold matter, the BiOp does not offer a rational explanation for failing to set a numerical incidental take limit for takes stemming from the removal of herbivorous fish. The BiOp measures direct takes (destruction of elkhorn and staghorn corals) from trap damage by considering the area of coral habitat affected. AR 10417. However, NMFS declined to measure the effects of macroalgal growth on elkhorn and staghorn corals in the same way. Instead, the BiOp suggests that it is "imprudent" to monitor macroalgal growth directly since "it is possible that macroalgal growth will continue even as herbivorous fish populations increase" AR 10418. This statement directly undercuts NMFS's choice to establish changes in herbivorous fish biomass as the proxy for measuring the harm that the

fishery causes to corals by allowing increased macroalgal growth. Once it established that it would look at changes in fish biomass as the measure for harm, NMFS could not – either as a matter of law or logic – then take the position that the same metric was unreliable.

Indeed, even assuming *arguendo* that NMFS offered an adequate explanation for using a proxy for incidental take rather than a numerical limit, NMFS's use of current herbivorous fish biomass on St. Croix as a measuring stick to determine whether the Fishery is adversely affecting elkhorn and staghorn corals fails in numerous ways to provide a reasonable proxy for take. First, the information presented in the BiOp shows that the present populations of herbivorous fish in the U.S. Caribbean, particularly of parrotfish, are significantly depleted from past levels and are likely insufficient to mediate competition between macroalgae and corals. AR 10347, 10349, 10351, 10353. In fact, at the time NMFS developed the BiOp, it had determined that parrotfish were undergoing overfishing. AR 10253. The BiOp also acknowledges that the current condition of staghorn and elkhorn populations and their habitat is so degraded that there may be little hope for recovery. AR 10354-56. Yet the incidental take statement arbitrarily chooses this severely degraded, baseline jeopardy condition as the very measure by which NMFS will determine whether its "no jeopardy" decision remains valid. This approach is both illegal and illogical. It is illegal because it ignores the twin purposes of the ESA: to prevent extinction of the species and to recover its populations. *NWF v. NMFS*, 524 F.3d at 929 (unlawful to compare effects of action to a degraded baseline condition rather than focus analysis on "whether the action effects, when added to the underlying baseline conditions, would tip the species into jeopardy."). It is illogical because it relies upon the current, highly precarious, status of elkhorn and staghorn as the standard by which it will determine whether continued fishing can proceed.

Second, NMFS's decision to monitor the Fishery's effects by monitoring the biomass of an unspecified suite of herbivorous fish, AR 10421-22, is not supported by the BiOp's own statements or the best available science. NMFS acknowledges that parrotfish play a unique role in removing fleshy macroalgae and that such a role cannot be filled by other herbivorous fish species or by the still-scarce *Diadema*. AR 8744; *see also* AR 11260-64, 12880-86, 12994-13010. Yet the terms and conditions established to implement the incidental take statement do not require that NMFS monitor the biomass of specific parrotfish species, even though these species are the very focus of the proposed action and their harvest results in the adverse effects on staghorn and elkhorn coral that the BiOp describes. Instead, the BiOp calls merely for monitoring undifferentiated herbivorous fish (which could include parrotfish and surgeonfish managed under the FMP but could also include unmanaged species like damselfish). AR 10421. Further, the terms and conditions require only that NMFS monitor the "most abundant" herbivorous fish species without regard to whether or not the most abundant species are the most critical for controlling macroalgal growth. *Id*. Scientific studies have long established that different types of herbivorous fish have very different feeding strategies, such that some species simply crop thin, filamentous algae while others remove larger algae or scrape substrate clear of all algae, making it available for coral recruitment. AR 1462-71, 11260-64, 13042-44. NMFS's choice simply to monitor the most abundant herbivores has no basis in the best available science and fails to provide a meaningful trigger for reconsultation. This is unlawful. *See Az. Cattle Growers' Ass'n*, 273 F.3d at 1250 (incidental take proxy must be based on data that links changes in habitat characteristics or other metric to take of listed species); *Miccosukee Tribe*, 566 F.3d at 1275 (invalidating incidental take statement where habitat markers used as proxy for take did not fully reflect the project's adverse effects on the species).

Similarly, the BiOp's reliance on biomass as a proxy for the grazing efficacy of herbivorous fish also fails to take into account and establish any trigger for reconsultation based on the size of herbivorous fish. Scientific studies demonstrate that the size of fish plays a key role in determining their grazing efficacy and that the size structure of the fish population is a key factor in determining whether that population can effectively mediate competition between macroalgae and coral. AR 10991-97, 11260-64, 12880-86. As the BiOp notes, parrotfish populations are already dominated by smaller fish due to overfishing. AR 10347, 10349, 10353. Merely measuring biomass does not account for the fact that larger grazing fish are needed to control macroalgal growth and minimize the serious negative effects of that growth on staghorn and elkhorn coral.

Third, the BiOp contains no measure of current herbivorous fish biomass against which any future changes are to be measured. Therefore, there is no viable way to detect the effects of the fishery even on NMFS's inadequate "herbivorous fish biomass" metric, and there is no way to detect whether the effects of the Fishery have exceeded those anticipated by the BiOp. This approach is illegal. *See Az. Cattle Growers' Ass'n*, 273 F.3d at 1250 (incidental take statement must provide some way to measure effects and determine whether the action is complying with the incidental take limit). NMFS itself admits that the BiOp does not establish a reinitiation trigger, despite the ESA's requirement that it do so. AR 10418. The ESA does not permit NMFS to choose an incidental take limit or proxy that it cannot measure. In fact, NMFS biologists noted that using herbivore biomass was impractical and ineffective:

> Because the focus of the BiOp, and the issue, is the availability of critical Acropora settlement substrate, seems to me that a possible T&C [term and condition] would be a program to quantitatively monitor the availability of that substrate. Knowing how healthy the parrotfish population is does not fully address the issue. . . .If you're concerned about the availability of critical Acropora settlement substrate, then measure that parameter.

AR 27871; *see also id.* (response stating that the BiOp's "no adverse modification" conclusion hinges on the "outrageous claim that reducing the harvest level would lead to improved fish stocks without knowing ANYTHING about the stocks") (emphasis in original).

As the court in *Wild Fish Conservancy* explained, the agency "must either specify monitoring and reporting requirements with respect to the [numerical take] limit or, if appropriate, select a surrogate trigger that *can* be monitored." 628 F.3d at 532 (emphasis in original). In this case, NMFS cannot measure changes in herbivorous fish biomass when it does not know what that biomass is to begin with. In fact, the BiOp's terms and conditions require only that NMFS develop a baseline estimate of herbivorous fish biomass more than a year *after* NMFS has already implemented Amendments 5 and 6. AR 10421.

Finally, the BiOp fails to establish *any* numerical limit or proxy for incidental take stemming from indirect Fishery effects in Puerto Rico or St. Thomas/St. John, even though the BiOp admits that the Fishery adversely affects staghorn and elkhorn coral in these areas. BiOp at 122, 124, 192. The BiOp therefore fails to establish any means to monitor the Fishery's effects on staghorn and elkhorn coral and trigger reinitiation of consultation within two-thirds of the action area. That failure violates the ESA. *See ONRC*, 476 F.3d at 1040-41 (authorizing take "without any additional limit [] is inadequate because it prevents the action agencies from fulfilling the monitoring function the ESA and its implementing regulations clearly contemplate.").

For these reasons, NMFS's incidental take statement fails to provide the rationally-based trigger for reinitiation of consultation required by the ESA. Therefore, the BiOp violates the ESA and is arbitrary and capricious, an abuse of discretion, and not in accordance with law, in

violation of the APA, 5 U.S.C. § 706(2).

IV. Defendants Violated Their Substantive Duty to Ensure that the Fishery Would Not Jeopardize Staghorn and Elkhorn Coral or Adversely Modify Critical Habitat

The legal flaws described above render the BiOp invalid. NMFS's Office of Sustainable Fisheries' choice to rely on the BiOp despite its easily discernable, fatal legal flaws was arbitrary and capricious and not in accordance with the law. This choice violated the agency's substantive duty under ESA Section 7(a)(2) to ensure that the actions it authorizes are not likely to jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat. NMFS therefore violated its duty as the action agency under the ESA and APA. *See Wild Fish Conservancy*, 628 F.3d at 532.

CONCLUSION

For these reasons, the Plaintiffs respectfully request that the Court grant their Motion for Summary Judgment, declare unlawful the October 4, 2011 Biological Opinion for the Reef Fish Fishery Management Plan for Puerto Rico and the U.S. Virgin Islands, and order NMFS to prepare a new BiOp that complies fully with the Endangered Species Act.

Dated this 14th day of September, 2012.

Respectfully submitted,

/s/Miguel Sarriera-Román
Miguel Sarriera-Román, Esq.
USDC-PR 207714
Attorney for Plaintiffs
Miguel Sarriera-Román Law Office
1104 Calle San Miguel
Quebradillas, PR. 00678
Phone: (787) 630-8319
Fax: (787) 895-7243
email: msarriera@prtc.net

Stephen E. Roady (*pro hac vice*)
D.C. Bar 926477
Earthjustice
1625 Massachusetts Avenue, N.W.
Suite 702
Washington, D.C. 20036-2212
Telephone: (202) 667-4500
Facsimile: (202) 667-2356
sroady@earthjustice.org

Andrea A. Treece (*pro hac vice*)
CA Bar 237639
Earthjustice
50 California Street, Suite 500
San Francisco, CA 94111
Telephone: (415) 217-2000
Facsimile: (415) 217-2040
atreece@earthjustice.org

Counsel for Plaintiffs

CERTIFICATE OF SERVICE

I hereby certify that on September 14, 2012, I caused a copy of the foregoing **Plaintiffs' Motion for Summary Judgment and Supporting Memorandum, Statement of Material Facts in Support of Their Motion for Summary Judgment, and Declarations** to be served on counsel of record via the Court's CM/ECF system.

s/Miguel Sarriera-Román